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SCHOOL AND SOCIETY

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Volume IV SATURDAY, DECEMBER 23, 1916 Number 104

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SCHOOL AND SOCIETY

Volume IV SATURDAY, DECEMBER 23, 1916 Number 104

COOPERATION IN THE STANDARDIZATION OF SECONDARY SCHOOLS[1]

To standardize or not to standardize seems to be the question, at least in some quarters. Even the colleges, especially in the case of some of our New England brethren as related to the College Entrance Certificating Board, have seriously questioned its advisability under the particular form familiar to them.

William B. Mooney in a recent article[2] on "The Relation of Secondary Schools to Higher Schools in the United States" declares for "hands off" on the part of all outside sources of standardization. He would have standardization "through education from within rather than from pressure from without, such as is now being used, through the system of inspection and accreditation."

Dean Louis T. More, of Cincinnati, writing recently for the *Nation*,[3] sounds a note in quite another key when he says:

> If our public schools continue to emphasize vocational work above mental discipline, and to standardize education down to the needs of the melting-pot, then children of the intelligent classes will more and more be sent to private schools. This is most undesirable, as it will lower the standards of public education still further; and it is contrary to the best interests of a democratic spirit.

It is such acts and statements as these, coming from institutions and men of the highest order and the clearest vision, that lead us to enquire again as to the true meaning of standardization and the methods by which the educational institutions of a democracy may best secure it.

Why attempt to standardize our schools? Are there certain elements out of the complex experience-legacy of the race the complete inheritance of which by oncoming generations we as a free people are impelled to make sure? And does our own experience in endeavoring to adjust our problems in accordance with the will of the heterogeneous masses characteristic of our nation warrant us in leaving this to the mere chance and drift of public sentiment? Are our schools, or those who conduct them, so thoroughly grounded in known principles of procedure that they may be left to themselves as the trusted and absolute individual guardians of so great a public interest? Or are we still living in that stage of our democratic evolution where we need to apply the consensus of enlightened public opinion, expressed after due deliberation, and through chosen experts, it may be, to the fostering of that exceedingly fundamental conservator of national ideals and human rights, the free public high school?

Are there, in other words, certain minima of educative efficiency and scholastic achievement upon which society, represented in the state department of education or any other constituted authority or institution, should continue to insist? Are there constants of the curriculum the dropping of which would endanger or seriously impair the rich inheritance we are endeavoring, through the schools, to transmit?

Let us seek to answer these questions by

[1] Read at the annual meeting of the Association of Colleges and Secondary Schools of the Southern States, Durham, N. C., November 17.

[2] In the *Pedagogical Seminary*, September, 1916, pp. 387–416.

[3] *The Nation*, Part II., September 7, 1916.

formulating a brief statement of the principles involved in this process which we call standardization. The schools, from the lowest elementary grade through the graduate school of the university, are maintained as a public charge for the sake of the general welfare. We want ability to be good citizens in a democracy; ability to develop and use all material resources for the common good; ability to conserve and use the best products of race inventiveness, of race thought, in all forms of their expression; ability and will to be honest, reverent, strong and of high courage.

To such ends we have set up schools of different grades, a fact which in itself implies standards. No sane person objects to the placing of the elementary child in one school, the adolescent in another and different school, and the mature youth or adult in a still higher and more distinctly differentiated school. This much of standardization, we all agree, not only does not endanger society but is absolutely necessary to the well-being of democracy and the meeting of those requirements enumerated above. Yet, on the other hand, there seem to be some people who insist that some of the work of an elementary grade may as well be done in the secondary school, and some work that is entirely secondary in character should also be assumed by the colleges and universities.

In his address at the opening of Johns Hopkins University Thomas H. Huxley said:

> University education should not be something distinct from elementary education, but should be the natural outgrowth and development of the latter.

Here would seem to be stated the first essential principle of standardization. Not only are the children of men to be classed in different schools but they are to arrive at this classification by a regular process of physical and mental development. There should be no hiatus at either division point and no unnecessary loss through duplication of materials. The chief struggle in all matters relating to standards comes at these very junction points; and especially, as far as present popular expression goes, at the juncture between high school and college. Here is now the real crisis of the situation.

The fact that the university presents within itself a wide differentiation of studies is patent to all. Here are represented all the fundamental professions—law, medicine, theology, engineering, business administration, teaching, agriculture. If we accept Huxley's idea of the continuity of development throughout the various stages of education it readily appears that there would necessarily be a certain corresponding amount of differentiation in the work of the high school. Otherwise the student might enter upon his work in any particular college with a decided handicap. The student of law, for instance, is likely to require a more profound knowledge of history and economics than would be necessary in other professions. Students in medicine or agriculture similarly require a superior knowledge of the principles of science, the engineer of mathematics, and so on throughout the professional field as represented in higher schools of learning. The same general principle as to differentiation would apply to callings to be entered upon directly from the secondary school. The educational requirements would vary in different departments of service but on a different level.

It is a well-established principle of education that successful progress in any field of abstract learning calls for an interpretative power to be acquired chiefly through numerous and varied concrete or practical experiences. The advantage of much of the

academic instruction in high school frequently depends upon the earlier establishment of such a basis of experience together with the awakening of the pupil to a consciousness of the value of a particular study as related to his progress in school and in life.

Such considerations evidently point to the necessity for a certain amount of differentiation adapted to the nature of high-school work. They also lead to the inference that at least one important function of commercial, manual training and agricultural courses may be to provide concrete experiences as a basis for interpretation in the more abstract fields of learning.

Here again we come to a contested point as regards the character of courses to be offered in high school. The purpose in view in offering a course or in choosing it may differentiate it from another course in the same subject and in the same school. But now arises a certain type of administrator of high-school courses who wildly gesticulates and shouts (figuratively):

> Deadened, formalized, mummified, our work of embalming everything into "units." Witness the ghastly "pedagogization" of manual training the country over.

The trouble is in the assumption that the aim at vocation training calls for any different treatment of such a subject from that which would serve as a basis for academic interpretation and good general intelligence concerning certain forms of skilled labor necessary to the comfort of any citizen. Yet this difference is one of the division points between college and secondary-school ideals of standards. And evidently, according to the reflection seen in the periscope of the secondary man just quoted, standardization with reference to differentiation had gone awry.

We are certainly a long way from settlement of this particular phase of the problem, for it must be evident that there is a real principle involved. As has been suggested this need of differentiation occurs not alone in preparation for college courses. It is needed on the part of those who are to pass from the high school to active fields of service, whether through the civil service examination, by direct contract with employers, or in the case of those who will begin vocations on their own initiative or as their paternal inheritance.

This problem of differentiation involves a contingent problem of advisement. The student has never gone this way before. The old method of choosing a profession according to family tradition or parental behest is now obsolete. The scope of the problem of choosing a calling on a high plane of preparation has broadened immensely. Intelligent selection demands intelligence of outlook upon the great fundamental fields of service. This applies alike to the one choosing and to his advisers. Until recently this selective and advisory function of home, community, school and college has been overlooked, or, at least, its importance underestimated. We shall need to work rapidly during the next decade or two if we are to acquire real control of the situation. Yet the freedom of the school and of the individual and the competency of democracy are all at stake.

The alternative to such control seems to lie in the direction of vague and wasteful overlappings at the junction point between high school and college. In fact the tide has already set strongly in that direction. Each year the number who apply for admission to professional courses in our universities who are disqualified in some particular line of preparation which they might have taken in high school, but did not, is increasing rapidly. At the same time the scope of offerings on the list of high-school subjects is also becoming wider,

The demand is frequently heard from high schools that the universities accept for entrance anything that is properly taught. This might seem to relieve the high schools of further responsibility; but it does not work to the advantage of the pupils or society that there should be so many completing courses in high schools who find, too late, that they are not prepared to follow further their chosen lines of preparation. One result is the offering by the various universities of increased numbers of elementary courses duplicating those offered in high schools.

Here we come again very close to the heart of the fundamental problems of standardization. It seems fair to conclude that there is great need of more definite understanding and agreement along this line, and that the problem is much broader than that of standards for college entrance alone. If school grades imply standards; if our schools should represent unbroken and unrepeating progression; if there is the necessity for differentiation; if this differentiation may involve experimental contact as a basis for interpretation; if there is a real problem of the selective and advisory function, then there is urgent reason why there should be some deliberative method of flexible standardization of secondary schools.

But how can this be done? Can the colleges and universities alone do it? They have too long held themselves aloof from the secondary problem as considered in any such broad sense. They have become static —too fixed in their own traditions. This is not said in a spirit of harsh criticism. The colleges remember the Renaissance, the quickening of a new civilization by renewed contact with the old, and their faith in the past is strong.

Can state departments do it? The very nature of their composition tends to an even greater, or at least a more shallow, formalism; or else they are swayed by the political conditions of our young democracy and thus lose their power to function effectively in such a capacity. Neither is the situation greatly improved when the state transfers this work to a board, or undertakes to hedge it about by legislation.

Can educational institutions and state authorities working in cooperation accomplish the ends sought? They may approach much more nearly the conditions of success; but there will still remain something more, a still broader cooperation needed. Mr. Mooney, in the study previously quoted, offers this solution:

> The fourth plan, which is to allow the high schools complete freedom, the state departments and the higher schools assuming an attitude of helpful advice and cooperation toward these schools rather than an attitude of direction and prescription, is the one we would advocate.

This sounds not unlike the old problem of the man, the fence, and the boot-straps, with the innovation of having the benign presence of one or two friendly characters in order to guard against any possible accident. In this statement Mr. Mooney effectually explains what he meant in the previous quotation by "education from within rather than from pressure without."

The fatal weakness of such a proposed treatment of the problem seems to arise from a decided misconception of what is really going on in the field of standardization. The situation calls for the combined wisdom and cooperation of all—the high schools with state departments and higher schools, and each and all of these with communities; and then again in still larger groups like this Southern Association and the North Central Association. And surely we are finding further advantage in even a little voluntary cooperation between our two sectional associations.

There is need that we should recognize

the advantage in flexibility of standards, that sort of flexibility which permits of readjustments from time to time as important changes occur or as experience and research shed new light on the problems involved. At the same time we should not forget that real progress in education demands a reasonable stability of standards in the more fundamental aspects of educational practise.

Before we can justly hold individual pupils to a very strict accountability as to scholarship standards we should insist that our educational institutions get right. The children are wards of society in matters educational. They are powerless to help themselves. It is the task of society whose institutions the schools are to see that at each level of advancement they are made good enough to insure to each individual that quality of training to which his age level, other things being equal, entitles him. In other words adequate standards of equipment, of effective organization and management, of teaching ability, should be required of the institution before either society or the institution higher up too harshly judges those individuals representing the output. If this is true then it follows as a corollary that society should find a way to provide enough teachers and those expert in supervision to make sure that the instruction of the schools is sound in both content and method.

We need, then, a broader and fuller cooperation in setting up standards for our schools whether they be elementary, secondary or higher schools. Such cooperation, to be successful, will require the fullest possible recognition, by all parties concerned, of the fundamental character of the different institutions to be standardized. All this bespeaks breadth of vision and a sympathetic as well as judicial attitude. There must be a "give and take" spirit, a willingness to make adjustments; but always with the aim of leveling up rather than down in the efficiency of the schools to be standardized.

Associations such as the one here assembled, and working in cooperation with other similar groups, may very properly assume the burden of laying down along broad lines the fundamental elements and principles of standardization. Such a broad reach of action is essential chiefly for securing a wider interchange of experiences and the results of research in this particular field of educational development. It will tend, on the one hand, to enrich the general fund of knowledge with which to attack our problems, and, on the other, will serve in minimizing provincialism in a field where great nation-wide interests are concerned.

State organizations representative of all types of educational institutions, but most strongly of secondary schools, may well undertake the more detailed interpretation and application of principles to individual schools and the departments of instruction in these schools. The type of organization here suggested is well represented in our Illinois High School Conference. This meets annually at the state university. All high schools, colleges and universities, normal schools and all grades of educational officials of the state are invited to participate. The work is done chiefly in groups which meet to study problems rather than just to hear programs. Last year's session enrolled 1,286 outside of the local university contingent, and 1,400 in all. 303 public high schools, a number of academies, normal schools, colleges and universities were represented in the deliberations.

Below and beyond some such state-wide work of dealing with problems of standardization should be involved the community centering about each high school. Recently the Board of Education of the city

of Chicago set aside $100,000 to be used in building up such community centers. By means of just such organized effort the public high schools are rapidly coming to be the recognized forums of the people for the discussion of all such community interests. It is from no weak sentimentalism that such community sharing of the burden is here advocated. Let us not be deceived as to the limitations to successful community action in judging of values in the matter of educational standards. The real point is to secure that intelligence on the part of the masses that shall dispel doubt on their part as to the desirability of setting up definite aims for our schools.

Standardization to become really effective in our schools so as to withstand the forces that, in their self-seeking, are blind to the needs and most destructive of the essentials of our educational institutions must thus reach down through section, state, the school itself, to a considerable portion of the common people. These things must come home to the patrons of the schools and to all true believers in democracy, patrons or not, who are ready and insistent in bearing their portion of the cost of progress and of general community uplift.

It is only through such complete cooperation that we may hope to realize that freedom of our essential institutions which makes for democracy. It is education both within and without which should prevail. That spirit which sees only the individual, whether man, or institution, or community, or state, does not make for freedom; it is one of her most subtle antagonists.

We speak, therefore, for a rallying of all right-minded people to this cooperative movement for the readjustment of those factors of youth-environment which our public secondary schools represent to the end that these schools may function with ever increasing power as the conservators of our social interests, and that at the same time they may put the individual in possession of those elements of knowledge and experience that shall speed him on his chosen way to service.

H. A. HOLLISTER
UNIVERSITY OF ILLINOIS

THE PEDAGOGUE AND PREPAREDNESS[1]

WE hear now a great deal about preparedness. Nearly every one seems to feel a need of greater national preparedness, but the ideas as to what constitutes preparedness and how it is to be attained are very varied. Let us consider for a few minutes this afternoon what kind of preparedness this nation needs, and what part in it the pedagogue must play.

That we need to be prepared to defend ourselves from the military attack of any hostile nation seems too obvious to discuss. Until there is an international court just enough and an international police force strong enough to protect the nations of the earth, each nation will have to bear the burden of providing the best individual defense that it can, in order to protect its life and property from the military attacks of competitive nations.

However, let us remember that but few nations have ever been destroyed by attacks from without. Occasionally a tree is blown over by the storm, but whole forests are constantly going down because of disease and insects within the bodies of the trees themselves. It is national sloth, ignorance, injustice, corruption and false ideals that bring down vast empires and make great nations an easy mark for the shafts of their enemies. The biggest part of national pre-

[1] An address delivered at the autumn convocation of the Department of Education of the University of Texas, October 19, 1916.

paredness even for war comes before the military training, and lies back of the various trenches and fortresses in the homes, fields, factories and schools of the nation. The wonderful military machine with which Germany has for two years withstood the armies of half the world could not have lasted three months had it not been backed by an educated citizenship, an industrious and highly skilled population, supported by long-taught ideals, by carefully prepared physical equipment, and by civic, social and economic organizations built up to a high degree of efficiency through years of patient study and effort.

In considering, then, national preparedness it behooves thoughtful people to look back of mere military readiness to discover those fundamental elements of national strength, without which no nation can long endure. To-day we can but briefly touch three general aspects of our needed preparedness: first, economic; second, social and civic; and third, spiritual.

Thus far in America, and more especially in Texas, we have merely garnered the natural resources that nature had left on the surface ready to hand. Instead of farming scientifically we have been mining our virgin soil, taking each year a fraction of its fertility, putting nothing back, and leaving it poorer and poorer for each succeeding generation. We have bred few new plants, contenting ourselves usually with cultivating each year the same plants that our fathers picked ready-made from the bosom of nature. Our miners have panned the loose gold on the surface and are smelting in a wasteful manner the richest ores. Our lumbermen are cutting each decade the growth of centuries and planting nothing to fill the place. The vast stores of raw material that we garner from nature's rich supply in Texas and in a majority of our other states must be transported half across a continent and back to find skilled manufacturers to turn them into needed articles of commerce. Myriads of footpounds of water power are wasted daily, and vast opportunities for irrigation and drainage lie unused, because of a lack of well-trained engineers and a sufficiently enlightened public opinion. Our country must continue to lack the most fundametal elements of preparedness until its schools and colleges have trained a vast army of educated engineers to plan and execute wisely the great chemical and physical and electrical projects needed; skilled farmers who know how to apply the secrets of botany and zoology to the breeding of finer and better-adapted farm plants and animals, and to utilize the secrets of chemistry, bacteriology and electricity in enriching our soils. Our schools must likewise supply a body of highly trained experts capable of applying a thorough scientific knowledge of nature's laws and correct principles of business organization to the handling of our mineral and lumber resources. Another army of educated leaders and skilled workmen must be prepared to take over the rich stores of raw materials and turn them into the manufactured articles of commerce.

So, all along the line, an abundant supply within our own borders of the necessities of daily life and of the articles of trade must be assured by the educated and skilled products of our schools. The ability of a nation to provide such a supply of the physical necessities of life in war or in peace is dependent under modern conditions of life absolutely upon the efficiency of its schools.

But a supply of the material necessities of life is simply a beginning. There must be worked out a fair system of distribution of these necessities and a just system of reward for service. It is only too obvious that under present conditions certain forms

of service are rewarded far beyond their just deserts and a vast mass of humanity endure with constantly increasing irritation a lot only slightly above that of dumb, driven cattle. Our legal and economic systems are encouraging a number of men and women to amass a deal of wealth and power that injures them and endangers society itself. On the other hand, many extremely important kinds of service are so poorly rewarded that it is impossible to retain in these professions such a supply of ability as the best interests of society itself demand. The constantly increasing unrest that expresses itself in strikes, in acts of mob violence, and in the blind following of such leadership as promises any relief, gives to the demagogue and the fanatic a chance to come into power that they are rapidly utilizing. The laboring men and women at the foundation of our economic structure have organized and determined at all hazards and before everything else to demand and secure their rights as they see them. Those at the top have organized to protect their vested interests. The great unorganized middle class of professional and semi-professional, every-day men and women are caught between the trenches in this economic warfare. In every fight they are shot through and in every settlement are punished, no matter which side wins. Their peace is disturbed and their property injured when either side fires its batteries, and at every treaty they pay the indemnities, no matter who loses. Anti-trust laws and armed militia are at best expensive and only partially effective palliatives. There can be no social solidarity and no harmonious support of law until the whole people have been educated into common ideals of right and wrong, and correct conceptions of social and economic justice, based upon enlightened understanding of the mutual dependence of mankind, each upon all for his true development and highest happiness. So long as each knows only the life of his own little circle and has no true conception of the complex structure of society, no idea of the services rendered by any group save his own, it is idle to expect either laws or customs to embody reasonable conceptions of right or social justice, or to receive the loyal support of the citizens. Laws and customs are but expressions of the ideals of the leaders of the people. All advance in law and every improvement in economic adjustment is dependent upon public sentiment for its effectiveness, and that public sentiment is made by citizens who have passed through our schools. If we inculcate in their young and impressionable minds wrong ideals, then it is we who wrong society. If we take up their time with traditional formalities and pedantic studies, and send them out into the world with no understanding of the life about them, no correct conceptions of law, of justice, of right, a prey for the demagogue and unscrupulous self-seeker, then we are to blame if rottenness and ignorance are in high places, if every man's hand is against his brother and injustice and unrest are abroad in the land.

Here is the second great call to the teacher. If this nation hopes to defend its integrity against the embattled armies of earth from without, then the schools must provide the skill and learning in our citizenship necessary to make us independent of the world for the material necessities of life. If we are to hope for peace within our own border, if the ugly viper of class hatred is not to plunge its fangs into our vitals, if the green-eyed monster of jealousy and suspicion is not to eat out all the joy, all the beauty, all the energy from our life and leave us a discordant, inefficient people, wasting our enegy in petty quarrels among ourselves, a prey to any force from without,

then the school teacher must begin betimes and build up in the minds of the children of this nation an understanding of the services of every class of our citizenship, must develop in them an appreciation of the mutual dependence of man, and send them out into the world with an enlightened sense of justice and fair dealing, with human sympathy, and with a sense of service due.

Thus far we have prepared for only the bare necessities of life and for the preservation of peace within. We have just begun to live. The last, but most important part of national preparedness, remains to be considered. With industrial efficiency and economic and social justice established, there will be time and opportunity for the cultivation and exercise of the higher life of the spirit—the diviner, nobler side of man's nature.

There are two reasons for this demand that the school give heed to the development of this gentler, more spiritual side of our natures. One is negative and the other is positive. Human beings are so constituted that they must have enjoyment and diversion. The mind or body that bends without ceasing to its labor soon loses its spring. Diversion and rest must be had to bring recreation, renewed vitality, zest and efficiency in labor. The expression of the higher life of man in music, art, literature, science, philosophy and religion offers us the needed mental recreation in life, provided our natures have been educated up to the appreciation of these flowers of the human spirit. Without the education that develops this capacity for the enjoyment of the higher things of life, the man or woman who seeks diversion and rest from labor can but fall back upon the gratification of his baser instincts which express themselves in gluttony and debauchery, or the pursuit of idle show and folly. The repeated breaking down of our great financiers and business men in middle life, and the incredible waste of wealth, of energy, of life and character generally in licentiousness, in gluttony, in alcoholic debauchery, and in rivalry in vain show, acclaim to heaven the crying need of cultivated minds and hearts, with inner resources to fall back on between periods of efficient labor.

But above even this need is the demand for ideals. It is not sufficient that a nation should live, but it should live a life worth living. Without ideals, truly the people perish. If the ideal of a nation is the mere accumulation of wealth, then soon indeed will every man's spear be raised against his brother to sate the accursed thirst for gold. If idle ease be the ideal, then soon must the whole fiber of society be flabby and rotten. If military prowess and national domination be the ideal, then quickly will the finer life of the mind give place to the spirit of the tiger and the law of the tooth and the claw.

Efficiency in production of wealth and in piling up the comforts, conveniences and luxuries of life proves a blessing only when these material possessions are produced in the right spirit, and their use sanctified by high and holy ideals. Our nation can never be prepared until the schools can send out a new generation capable of getting their joy out of the higher life of the spirit, inspired with the ideals of the fatherhood of God and the brotherhood of man, and knowing the joy of service.

Each generation stands surrounded by the gleaming eyes of the beast and the savage, looking in from the night about us upon the campfires of civilization. It is no longer the gleaming eye of the panther or the Indian, but from out the darkness of our own souls gleam the only half buried selfish instincts and passions that await their turn to rush forward to gratification. Education must bring these beasts in us to

heel, or harness them to the service of our higher, gentler, ideal nature. The field of the nation's never-ending battle for existence is the souls of the new generation. The generals and captains and soldiers that alone can save the nation are the teachers, principals and other leaders in our great common schools and colleges who calm the savage instincts, develop the efficiency, and inspire the ideals of our nation.

There is no nobler, no more vital task known to man. For such a service the deepest devotion and the most thorough preparation are needed. On you, the teachers, rests the future of your state, your nation. Think well on your work; think well of your work.

A. Caswell Ellis
Professor of the Philosophy of Education, University of Texas

FACTORS CONTRIBUTING TO POOR WORK IN COLLEGE

The scholarship results, at the end of a college year, when compared with the cost of attaining them, are not gratifying. This is an old story which continues to be a vital problem in American education. How to awaken in the college youth an appreciation of his opportunities so as to fill him with a genuinely sustained desire to profit by the privilege of four years of college training is a perplexing question. It is a problem which involves much more serious consideration than it has yet had. Before a solution of it can be approximated, the factors that contribute to poor scholarship must be understood. What are some of the pronounced factors and to what extent is the student responsible for them.

Inheritance Factor.—The freshman's cap is not a sufficient guarantee that there is anything under it for intellectual cultivation. Each year the number of men entering college with the handicap of family illiteracy grows larger and the problems which they create in education become increasingly complex. These men and their parents are chips off the same blocks and their intellectual inheritances from the race largely determine what they will accomplish in the pursuit of an education. There is, of course, great variability in the mental endowments and capacities of these men, particularly in that valuable inheritance "common sense." The college can not furnish brains to those in need thereof. It must deal fairly with them and exclude them as unfit. In so doing, however, careful distinction should be made between the men who are minus intellectual capacity and those whose minds represent "virgin soil" not yet cleared of the "jungle of environment." The possibilities of the latter are not always readily and accurately determined. In closing its doors to such men the college runs the danger of seriously limiting its usefulness and influence in the progress of society. The clearing of virgin intellectual soil presents grave responsibilities for teachers and renders the problems of education considerably complex. No fair evaluation of the results in college teaching can fail to consider the limitations of the material. Teaching is research.

Secondary Education Factor.—Not many men who enter college to-day are prepared for scholarly achievements. The wave of utilitarianism which has swept over this country in the past few years has created a situation which makes difficult a broad general training. Political and social forces combine, in many instances, to eliminate from the school curriculum all studies whose value can not be estimated in terms now familiar to a boy and his social group. Latin, Greek and mathematics have given way to the so-called "practical studies." The general tendency is towards a superficial specialization in some one subject at

the expense of the fundamentals of an education. It is a shortsighted policy. In time, educators will agree that the chief function of an education is to enable a man to think—to think wisely and unselfishly.

In a recent address, the superintendent of schools in a large New England city declared that mathematics ought not to be required for entrance to college. Similar utterances, with respect to other required subjects, make it clear that there is confusion of thought on what an education is and for what purpose it is intended. The world's command is obvious. Train men to think and to serve! The issue is not what subjects are best for mental discipline or what kind of training will put a man quickest in the battles of life, but what fundamental studies will best prepare a man to understand, appreciate, enrich and ennoble life.

To judge the future wisely one must know the past. Human progress has been slow and difficult. Its history is unraveled only by a diligent study of all the mediums of human expression, important among which are language, literature, art, music, science, philosophy, religion and poetry. Life is a complex monster picture puzzle, the parts of which are secured in widely separate safety vaults. It is only by collecting the parts and assembling them that a symmetrical picture can be obtained.

A superficial and specialized training in preparatory schools is not conducive to good scholarship in college. It defeats its own purpose. It fosters a careless and indifferent spirit which is lacking in appreciation of the methods and the value of study. Its most serious defect is, however, that it fails to establish the essential connections for the college work that is to follow. When an attempt is made to dovetail advanced training into the preliminary education, no trace of the latter can be discovered. The grade of work done in college is determined largely by the thoroughness and broadness of the secondary education. This is a factor of paramount importance in any consideration of college scholarship results.

College Life Factor.—College life is a complex environment in which delusions and distractions play significant parts. Men catch its spirit as by contagion and soon become a part of it. Among the great delusions of student life, none is more damaging to the real triumph of truth than that which fosters the belief, so largely shared by students, that on matriculation one leaves the world's problems and responsibilities outside the campus gates. To some, college is an extensive joy-ride, free from constraint of any kind. There is very little sympathy with or time for intensive study in a college life of to-day, with its terrific demands on time and energy for the outside interests. Many students do the best they can under the circumstances. Campus, club and social activities present their claims for time, with accompanying assurances of rewards that are concrete and immediate. Study beckons, too, but its goal is not in sight. The student is dazed at first and is in doubt as to the proper choice, but he usually falls in line with the majority, choosing to put off study until some future time when there will not be quite so much demand for his time. How can a man be wrong in giving outside interests the first option on his time when custom has decreed it so and when such a course meets with public approval. Who cheers the man who makes a brilliant recitation or delivers an excellent oration? Who fails to cheer the man who makes a touchdown? Study is not to interfere with pleasure or college activities. The conscientious as well as the shiftless student falls a prey to the spectacular and exciting events in college

life. Smith plays on both the football and basketball teams, knowing that he is neglecting his studies in so doing, because he is under the delusion that loyalty to college spirit and to his social group demands the skill he possesses in these games. He wakes up to the reality of the situation to find his name transferred to the phantom roll. Outside interests have a place in college life, but study ought to be of first importance. The delusion that college work is of secondary importance soon takes root in the minds of students and it is difficultly dislodged. An irresponsible attitude towards daily tasks is common experience in student life.

A most vicious phase of this careless, irresponsible attitude towards college work is manifested in the false sense of security derived from the delusion that a "dope session" the night before an examination can take the place of carefully planned and thoroughly digested daily work. The average intellect can sponge sufficient information, holding it over night, to pass an examination. No man can think clearly and wisely with such a preparation. The cramming system is destructive to any system of acquiring knowledge. Its aim is simply to pass the examination. Information gathered in this way is fleeting and of no real and lasting value. The bolting of accumulated "lecture-room hash" leads to mental indigestion. The results are apparent on the morrow.

The average student does not know how to study. He has no plan and his perspective is usually faulty. The time at his disposal is seldom used to good advantage. About midnight he reads over his notes and decides that he has studied the subject, but it is too difficult for him to grasp at the time. He lights a cigarette and dismisses the subject from his mind. Much mental confusion and discouragement result from the student's inability to assemble the fragmentary notes in his possession into a connected sketch. He tries to get by with as little real work as possible. What a difference there would be in the actual knowledge possessed and the mental training acquired by four years of earnest, purposeful study.

Physiological Factor.—The physical condition of men in college is a contributing factor to the grade of work they do. Excessive smoking, insufficient sleep, prolonged excitement, and irregular and rapid eating, combine to render concentration and attention difficult. One soon finds that a poisoned and tired brain responds but slowly to educational stimuli. One can not think clearly when the alimentary canal and its tributaries are manufacturing and shipping into the blood system poisons which irritate the control centers and pervert organic functions. Again, tired brain cells need rest and one can not expect to have a keen receptive mind when he robs himself of sleep night after night during the college year. In my judgment, scholarship would be greatly enhanced by individual appreciation of physical limitations and by a genuine desire to conserve nervous energy.

Curriculum Factor.—If it be the purpose of a college education to train men to think, as I believe it is, then the fundamental studies ought to be required, intensified and unified. The entire college course should be coordinated so that the student could see the relation that one study bears to another. By fundamental studies, I mean those involving the principles which underlie human conduct and world progress. Too free an elective system tends to develop "one-track-mind students"—men who take honors in some one department and yet are ignorant of some of the things an educated man ought to know. The

elective system presupposes that the student knows the aim of the college training and is qualified to choose the means by which it is to be realized. Experience proves that the average student does not select his studies in conformance with any definite plan. A college training to be of value must be purposeful. It often happens that students elect the courses which have the reputation of making possible a "pass" with the least expenditure of time and energy. Very little interest is manifested in work so elected. By "grinding" the night before the examination, three hours are added to the quota needed for graduation but little information of lasting value is obtained. Faculties ought to be better qualified to select the subjects which can quicken mental perception and shape judgment than immature youths of limited experience. The curriculum should prescribe the fundamental training, leaving to the student the choice of his major work. The education most worth while is that which enables a man to understand best the problems of his environment; to appreciate human efforts and limitations; and to enjoy the privileges of unselfish service —in short, that which acquaints him with life in its fullest meaning.

The strength or weakness of the American college must be measured by her undergraduate body—the reservoir of her alumni. Her continued usefulness can be best guaranteed by a thorough understanding of her limitations and by a keen appreciation of her possibilities.

M. L. CROSSLEY
WESLEYAN UNIVERSITY

EDUCATIONAL EVENTS

THE EFFICIENCY OF TEACHERS IN THE NEW YORK CITY SCHOOLS

ACCORDING to reports in the daily press one per cent. of the teachers in New York City's elementary schools are "poor" and inefficient, but it is practically impossible to ferret them out and get rid of them under the present system, according to the consensus of opinion of superintendents who reported on December 13 to the board of education. The inefficient teachers must stay, several of the superintendents said, because "it is difficult to prove general charges of inefficiency, and sympathy for the teachers and influential friends add to the difficulty."

Most of the inefficient teachers are either too young or too old, the board of education learned. The young ones are expected to improve and sympathy keeps the old teachers in their places.

The superintendents have had since June 14 to prepare the answers to these three questions:

"First—If among the 21,000 teachers and principals there are any who in efficiency are below a reasonable standard that should be enforced in the interests of the pupils.

"Second—How failure to proceed against such teachers and principals in the past is to be accounted for.

"Third—What method can be employed for discovering and eliminating inefficient teachers and principals."

Eleven of the district superintendents said that there were very few inefficient teachers or principals. Other superintendents, admitting inefficiency, attributed the causes to old age, inexperience, illness, lack of sympathy, poor use of English and lack of constructive ability.

Five of the superintendents did not answer. Five of them denied failure to proceed against the inefficient. Eight said that it was difficult to prove inefficiency before committees of the board of education, and one or two maintained that their failure to act was due to the fact that inefficiency is generally of a temporary nature.

Some of the superintendents agreed that "it is a common shibboleth among us that to present charges against a teacher is to be on trial yourself." Others pointed out that in many cases the proper help given to the inefficient has brought about changes for the better.

"To discover cases of inefficient teachers, many say, the existing provisions are inade-

quate," according to the report to the board of education. "To eliminate them great hope is placed on a sensible pension law.

"According to records made by principals of elementary schools 16 per cent. of the teachers are in the 'average' class, 44 per cent. are in the 'very good' class, 39 per cent. are in the 'excellent' or 'superior' class and 1 per cent. are in the 'poor' class. This distribution of rating is contrary to the experience of the world in other lines of work."

RECOMMENDATIONS OF THE WEST VIRGINIA STATE SUPERINTENDENT TO THE LEGISLATURE

THE following is only a summary of the recommendations of the state superintendent as given in the West Virginia *School Journal*.

1. That some provision should be made to increase the permanent school fund, which is now one million dollars. This would make a larger amount available for distribution to the various districts.

2. That the minimum amount of the general school fund be fixed at one million dollars instead of seven hundred fifty thousand as it is and has been for the last ten or twelve years. This is in the interest of the poorer districts that are unable to provide proper school facilities with the resources now provided.

3. That a better and more effective compulsory attendance law be enacted.

4. That a minimum school term of seven months effective in 1918 or very soon thereafter be provided for.

5. That it would be well in view of the increased cost of living to raise the minimum salaries for teachers.

6. That some provision should be made for promoting night school work.

7. That the state provide free text-books for all pupils.

8. That provision be made for the appointment of a single trustee for each one-room school to serve under the direction of the board of education.

9. That an act be passed providing for pensions for teachers who have passed the age of active service.

10. That boards of education be given authority to provide teacherages under proper conditions for our rural schools. A "teacherage" is a home for the teacher, situated near the school. The purpose is to aid in securing teachers who will live in the community and take a permanent interest in its welfare.

11. That definite provision for supervision among the colored schools should be made.

12. That the county be made the unit of taxation for school purposes.

13. That the offices of county and of state superintendent be made appointive.

14. That the legislature should increase the number of teacher training high schools for the purpose of preparing more teachers for the rural schools.

15. That some provision should be made to encourage the rural graded schools to offer domestic science and manual training and other vocational subjects suitable for the various communities.

COURSES IN COMMERCE AND CIVICS IN THE COLLEGE OF THE CITY OF NEW YORK

"THE College of the City of New York in its division of vocational subject and civic administration," says Director Frederick B. Robinson, "has a college of commerce and industry, offering a diploma of Graduate in Accountancy and a diploma of Junior Accountant, that is the second largest college of its kind in New York and probably in the state, New York University being the first. This division has reached its present size although it is only a year old. Student applications for admission to classes have been so numerous that the director has had to turn away over 500 students because of insufficient accommodations. We expect in February to be ready to receive all who wish to avail themselves of the advantages of college instruction in commerce; we hope that it will not be necessary to turn any students away."

Among the prominent attorneys who have been lecturing at the college this year or are scheduled for lectures in the future, are the following: Edgar M. Cullen, former Chief Judge of the Court of Appeals; Francis M. Scott, Justice of the Appellate Division of the Supreme Court; Charles M. Hough, Circuit

Judge of the United States; Julius M. Mayer, District Judge of the United States; Charles L. Guy, Justice of the Supreme Court; Lindley M. Garrison, former Secretary of War of the United States; George W. Wickersham, former Attorney General of the United States; Francis Lynde Stetson, former president of the Bar Association of the City and State of New York; Samuel Untermeyer, former counsel to the Pujo Congressional Committee and special counsel for the United States; Julien T. Davies, of the firm of Davies, Auerbach & Cornell, counsel for large corporate and banking interests; Charles Thaddeus Terry, chairman of the Commissioners of Uniform Laws of the United States; Henry A. Wise, former United States Attorney; William L. Wemple, former Deputy Attorney General of the United States; Charles H. Tuttle, trustee of the College of the City of New York; Moses J. Stroock, trustee of the College of the City of New York; Travis H. Whitney, Public Service Commissioner of the State of New York; Wilbur Larremore, editor of the *New York Law Journal;* Everett P. Wheeler, counsel for the leading shipping interest, etc.

The ablest available teachers for the courses in accountancy have been secured. Among them are Paul J. Esquerré, head of the Post-Graduate School of Accountancy, New York, and author of "Applied Theory of Accounts"; Dr. Joseph J. Klein, author of "Elements of Accounting," "Commercial Education," etc.; Edward L. Suffern, formerly president of the American Association of Public Accountants and author; George M. Brett; John D. Payne; Dr. L. M. Saxton; H. F. Grady; Frank E. Mandel; R. W. Bouche; Saul Hyer; W. F. Shimberg; L. Gompers. The courses in business law are conducted by Bernard Naumburg and Dr. George H. Porter.

The registration figures in these courses for the present year are as follows: Accounting I., 12 sections, total 384; Accounting II., 126; Foreign Exchange, 46; Sociology, 36; Money and Banking, 26; Cost Accounting, 86; Department Municipal Accounting, 20; General Municipal Accounting, 18; Auditing, 44; Public Utilities Accounting, 9; Advanced Problems Accounting, 35; Lecture Theory of Accounts, 71; Judicial Accounting, 9; Commercial Law, 307. Cultural courses supplementary to the more technical courses offered show the following registration: Elements of Economics, 221; Economic Development of the United States, 26; English, 40, and Public Speaking, 80.

REGISTRATION STATISTICS OF THE UNIVERSITY OF PENNSYLVANIA

PROVOST EDGAR F. SMITH announced on December 16 that, according to the preliminary registration statistics, among the nine thousand students registered at the University of Pennsylvania this year, less than half are from the city of Philadelphia, almost 5,000 coming from places other than the city. Of these 2,274 come from the state of Pennsylvania and 2,369 from the various states of the Union other than Pennsylvania, and 193 from foreign countries. These statistics again, as in former years, show that the University of Pennsylvania is one of the most, if not the most, cosmopolitan university in the country.

Owing to the European war there is a slight decrease in the number of students coming from foreign countries, although 44 foreign countries and territories are represented among the students this year. There are 39 students from England and the British possessions. Of these Australia sent 8; British West Indies, 5; Canada, 16; England, 5; India, 3; Scotland, 1; and 1 from South Africa. The Latin American countries sent 89 students: Argentine Republic, 4; Brazil, 9; Chile, 1; Colombia, 5; Costa Rica, 6; Cuba, 5; Ecuador, 2; Guatemala, 1; Hawaii, 1; Honduras, 2; Mexico, 3; Nicaragua, 4; Republic of Panama, 11; Peru, 4; Philippine Islands, 3; Porto Rico, 22; Salvador, 2; West Bermuda, 1; Venezuela, 3.

Europe and Asia sent 65 students, as follows: Armenia, 4; Austria, 9; Bulgaria, 1; China, 29; Egypt, 4; France, 4; Germany, 1; Greece, 2; Hungary, 1; Italy, 1; Japan, 6; Persia, 1; Roumania, 1; Russia, 4; Spain, 1; Sweden, 1; Syria, 1; Turkey, 2.

Every state in the Union is represented this year, and most of the states show a considerable increase over former years. New Jersey leads with 587 and New York is a close second with 529. The following is an alphabetical list showing the number of students coming from each state, viz.: Alabama, 17; Arkansas, 2; Arizona, 1; California, 33; Colorado, 10; Connecticut, 79; Delaware, 58; District of Columbia, 55; Florida, 12; Georgia, 20; Idaho, 5; Illinois, 45; Indiana, 55; Iowa, 50; Kansas, 8; Kentucky, 24; Louisiana, 8; Maine, 29; Maryland, 97; Massachusetts, 77; Michigan, 20; Minnesota, 31; Mississippi, 6; Missouri, 28; Montana, 22; Nebraska, 6; Nevada, 1; New Hampshire, 8; New Jersey, 587; New Mexico, 1; New York, 529; North Carolina, 38; North Dakota, 10; Ohio, 129; Oklahoma, 3; Oregon, 5; Rhode Island, 15; South Carolina, 13; South Dakota, 7; Tennessee, 21; Texas, 24; Utah, 21; Vermont, 9; Virginia, 54; Washington, 29; West Virginia, 36; Wisconsin, 29; Wyoming, 2.

DISTRIBUTION OF THE GRADUATES OF YALE UNIVERSITY

According to the 1915 Quinquennial Catalogue which was recently published, 30,164 Yale degrees have been awarded during the 215 years of the institution's history. The 1916 biennial issue of the Directory of Living Graduates of Yale University, which has now been issued, lists a total of 19,316 living holders of Yale degrees. In other words, practically two thirds of those who have graduated from Yale to date are now living. The strikingly rapid increases of the past few years, the net gain annually averaging over 500, are due to the fact that larger graduating classes have greatly overbalanced the number of deaths among the older classes.

While marked increases in geographical distribution are seen, the increase in the Western Division of the United States is particularly striking. From 650 in 1904 it has jumped to more than double that number—1,310. Other increases during these twelve years are: North Atlantic states, 12,431 (8,510); South Atlantic states, 870 (544); North Central states, 3,368 (2,251); South Central states, 543 (315); Alaska, Hawaii, etc., 112 (62), and foreign countries, 534 (381).

New York and New Haven naturally lead in the matter of Yale population in various American cities. These figures for 1916 are: New York, 3,278; New Haven, 1,645; Chicago, 715; Hartford, 517; Boston, 462; Bridgeport, 273; Pittsburgh, 270; Washington, D. C., 265; Philadelphia, 264; Cleveland, 250; Buffalo, 193; Cincinnati, 174; Denver, 114; Detroit, 120; Honolulu, 47; Kansas City, 110; Los Angeles, 113; Minneapolis and St. Paul, 217; Portland (Oregon), 96; San Francisco, 118; Seattle, 98, and St. Louis, 107. Among foreign cities it is interesting to note that Tokio, Japan, leads with 48, while 37 Yale graduates are resident in London and 20 live in Paris.

Comparison between the present distribution and that of former years shows that occupations which used to attract comparatively few graduates are now making the greatest appeals, opening the larger fields for college men. Another fact to be noted is that of the fourteen different occupations given in the new directory, eight contain nearly 90 per cent. of the total of Yale graduates. Law, the most popular field, claims more than one fifth of all Yale's living graduates, and the other occupations fall into the order here indicated: engineering, manufacturing, finance, education, mercantile business, medicine, the ministry, science, literature, agriculture, art, transportation, permanent government, and civil or military service.

EDUCATIONAL NOTES AND NEWS

Dr. Hugo Münsterberg, of Harvard University, one of the most distinguished of the world's psychologists, died on December 16, while giving a lecture at Radcliffe College. Professor Münsterberg was born in Danzig in 1863. In 1892, at the suggestion of Professor William James, he left the University of Freiburg to accept the chair of psychology at Harvard University.

The *Journal of Education* calls attention to the fact that in the recent election Kansas went Democratic by about 40,000, but State Superintendent W. D. Ross was reelected by

more than 90,000. Mrs. Josephine Corliss Preston, state superintendent of Washington, was reelected by a majority of more than 50,000 while her party was defeated. Miss Mary Trumper has been elected state superintendent of Montana. Mrs. Mary C. Bradford, state superintendent of Colorado, was reelected by 30,000.

SUPERINTENDENT MILTON C. POTTER, of Milwaukee, was elected president of the Wisconsin Teachers' Association at the recent annual meeting.

WILLIS E. JOHNSON, president of the Northern Normal and Industrial School of Aberdeen, has been elected president of the South Dakota Educational Association.

DR. HENRY SUZZALLO, president of the University of Washington, and Dr. Edward C. Elliott, chancellor of the University of Montana, spoke at the twenty-seventh annual convention of the Montana State Teachers' Association which met in Missoula at the end of November.

CONGRESSMAN SIMON D. FESS, of Ohio, and Dr. G. D. Strayer, of Columbia University, were the principal speakers at the thirty-fourth annual session of the South Dakota Educational Association at Watertown, November 27, 28 and 29.

PRESIDENT SHARPLESS, of Haverford College, has sailed for Liverpool with the expectation of remaining in England about six weeks. He has not stated the purpose of his mission, but as the new Scull professorship of English constitutional law is to be filled, it is supposed that this matter will receive his attention.

A DINNER was given by the citizens of Minneapolis in honor of Dr. Cyrus Northrop, president emeritus of the University of Minnesota, on the evening of December 7. There were a few short addresses and musical numbers. The purpose was to provide an opportunity for the people of Minneapolis to show their deep regard for Dr. Northrop.

THE California Schoolmasters' Club gave a dinner recently in San Francisco in honor of Dr. Alexis F. Lange, who has just completed a decade of service as head of the department of education, University of California. According to an account in the *Sierra News* Commissioner W. C. Wood characterized the place which Dr. Lange and the school of education hold in the hearts of the school people and their influence in the school system most fittingly. Dr. Cubberley outlined the "big" things Dr. Lange has led in doing. Dr. Richard G. Boone spoke to the toast, "Dr. Lange and the New School of Education" and State Superintendent Hyatt responded most happily to the toast, "Dr. Lange, the Man."

AT the Broadway School, Cleveland, O., Miss Dillon, who retired as principal in September, has been given a reception with addresses by the mayor and prominent city officers and other citizens who had been her pupils.

PROFESSOR FRANK SMALLEY, dean of the College of Liberal Arts of Syracuse University since 1900, and connected with the university first as a student and then as a faculty member since its organization in 1870, submitted his resignation at the mid-winter meeting of the board of trustees. The resignation was accepted and Dr. Smalley was appointed vice-chancellor emeritus. Dean Jacob Richard Street, of the Margaret Olivia Slocum Teachers College, also tendered his resignation on account of ill health. Henry A. Peck, professor of astronomy, was appointed acting dean of Liberal Arts College until the end of the college year in June, and Dr. Mark E. Penney, associate professor of philosophy, was named to fill the vacancy left by the resignation of Dean Street.

EDWARD COOKE ARMSTRONG, Ph.D., and Charles Carroll Marden, Ph.D., both for years connected with the department of the Romance languages of Johns Hopkins University, have accepted appointments in Princeton University. Dr. Armstrong is to have charge of the graduate work in the French language in that institution, while Dr. Marden has been appointed to fill the recently created Ford professorship of Spanish.

PROFESSOR T. H. BOGGS, of Dartmouth College, has accepted a position as professor of economics in the University of British Columbia at Vancouver.

DR. JAMES E. BOYLE has resigned his position as head of the economics department at the State University of North Dakota in order to become field agent in marketing at the State Experiment Station, Fargo, North Dakota.

AT a meeting which citizens and educators held at Charleston, West Virginia, Wednesday, December 6, for the purpose of organizing a movement to establish a woman's college, President Charles W. Dabney, of the University of Cincinnati, made the leading address. The proposition is to take the Lewisburg Seminary of that state and make of it an institution of the highest grade for women. An endowment and building fund of $1,000,000 is to be raised, and the purpose of the meeting was to enlist the aid of leading citizens of the state. Among the leaders in the movement who were present were M. P. Shawkey, superintendent of schools of West Virginia, who acted as chairman; Governor Cornwell; Mr. R. B. Hudson, president of the board of directors of the Lewisburg Seminary; Hon. John A. Preston, of Lewisburg; President Robert H. Adams, of Lewisburg Seminary; the Reverend D. P. McGeachy and former Governor William A. McCorkle, of Charleston. There was a large attendance of citizens of Charleston and other parts of the state.

IT is stated in the *Manual Arts Magazine* that the state of Iowa is taking steps to meet the conditions of the Smith-Hughes bill for federal aid in connection with the teaching of industrial, agricultural and home economics courses in the public schools. Early in November leading educators, business men, editors, representatives of labor, and many others interested in progressive movements, attended an all-day conference held in the State House. Dr. C. A. Prosser, director of Dunwoody Institute, Minneapolis, was in attendance and gave the people the benefit of his experience in helping them to formulate plans. A. N. Deyoe, superintendent of public instruction, was empowered to appoint a committee of not more than seven to draw up and report a program of carefully drawn bills to submit to the legislature at the coming session. During the conference the economic loss of child labor was repeatedly brought out by those who spoke from experience, and as a result, any needed educational legislation touching this subject will not be difficult to secure.

THE American Home Economics Association has announced that its next annual meeting will be held at the University of Minnesota, Minneapolis, August 22 to 28, 1917.

PRESIDENT A. E. WILSON, of the California Teachers' Association, Southern Section, has issued a list of speakers for the convention at Los Angeles, this week. It includes: Hon. Calvin N. Kendall, commissioner of education, Trenton, N. J.; Dr. E. B. Bryan, president Colgate College, Hamilton, N. Y.; Professor Peter U. Dykema, University of Wisconsin, Madison, Wis.; Professor Thomas H. Briggs, Teachers College, Columbia University, New York City, and Professor Paul Shorey, University of Chicago, Chicago, Ill.

AMONG the speakers at the meeting of the Wisconsin Teachers' Association, held in Milwaukee last month, were John H. Finley, president of the University of New York; L. D. Coffman, dean of College of Education, University of Minnesota; William Tate, George Peabody School of Education, Nashville, Tenn.; William A. Wirt, superintendent of schools, Gary, Ind.; L. D. Harvey, president of Stout Institute, Menomonie, and C. A. Prosser, director of Dunwoody Institute, Minneapolis.

General Science Quarterly is a new science journal which is edited by W. G. Whitman, of the Salem State Normal School. In its announcement the scope of the journal is thus described: (1) Its field is the elementary and secondary schools. (2) It will keep you informed of new developments in science in the Junior High Schools. (3) It will describe successful general science courses. (4) It will report general science meetings. (5) It will give reports of general science committees. (6) It will give specimen lessons and demonstrations. (7) It will give many helpful suggestions to the teacher of the special sciences. (8) It will contain articles by prominent educators on both the theoretical and the practical side of teaching. (9) It invites you to

contribute your best to its pages. (10) It offers opportunity for exchange of views on important science questions.

By the will of Mrs. Mary Warden Harkness, widow of Charles W. Harkness, various public benefactions amounting altogether to about $1,100,000 are made. The principal beneficiary is Yale University, which receives $300,000, for the salaries of professors.

BOSTON UNIVERSITY has received an anonymous gift of $100,000 for scholarships for young men in the College of Liberal Arts. The gift is to be known as the "Professor Augustus Howe Buck Educational Fund," in honor of Professor-Emeritus Buck, who served from 1874 until 1901 as head of the department of Greek in the college of liberal arts. Since his retirement from active work Professor Buck has been living in Rostock, Germany. The scholarships provided by the fund are to be made in the freshman year and to continue throughout the college course, the professional school, and if the career chosen by the candidate warrants it, one or two years of postgraduate study and travel. The scholarships are open to young men of unusual promise, but with insufficient means to obtain a professional education. Religious denominational influence or political bias shall have no weight in the appointment, and preferably those students who choose professions for service, rather than for financial gain, will be selected. The president of the university shall make the appointment on the recommendation of the faculty of the college of liberal arts.

ON November 29 the contracts were let for the new hall for women at DePauw University. Mr. Edward Rector, of Chicago, has added $50,000 to the $100,000 previously given by him for the building. The Studebakers of South Bend have added $8,000 to the $50,000 already given by them for the new administration building.

DISCUSSION AND CORRESPONDENCE

A UNIVERSITY HOW-TO-STUDY CLASS

Two years ago the faculty of the college of engineering of the University of Washington requested the writer to offer a two-hour course in "How to Study" to a class of about fifty junior and senior civil engineers. The course was given the second semesters of 1914–15 and 1915–16.

The writer agreed to give the course providing the engineering instructors, having the students in their courses, would, also, attend the class and participate in its discussions. It was agreed, also, that the instructor of the class should take the initiative in presenting the theory of study and that the engineering instructors should help the students to apply the theory in their engineering studies. The first class met two hours a week with the "How-to-Study" instructor and the engineering instructors, but the second class spent one of these periods studying under the supervision of the engineering instructors. The latter plan seemed to secure better results.

The theory of the course centered around the psychology of *problem thinking*. The psychology of the problem was carried through the processes of *discovering* and *solving* a number of problems arising in various studies other than engineering. The theory and application of induction and deduction, and analysis and synthesis were presented.

Following this work the engineering instructors presented a number of original engineering problems, showing how they discovered them and how they solved them and as far as possible pointing out their psychological implications.

Then the students brought to class and demonstrated original engineering problems, which they had discovered outside of their books, after which discussions followed and much interest was displayed. The students vied with one another in discovering and solving problems. The demonstrations of the instructors were frequently as vigorously criticized by the students as were those of their classmates.

Problems were handed in by the students on the average once in two weeks. They were required not only to state and solve their problems, but, also, to indicate the psychological steps involved in their solution.

Perhaps enough has been said to show the general plan and the main purpose of the course. It was our constant endeavor to aid the student in developing a problem consciousness in his work. If students are expected to do good work, why should they be kept in the dark as to the method of their own thinking? A student should be able to check up on the validity of his thinking in terms of his own mental processes. His mental processes are his working tools. While successful work requires automatic activities, which are relatively unconscious processes, it also requires in its critical phases a knowledge of one's mental processes. Recent investigations made of students' study habits show that frequently they do not distinguish between merely memorizing and thinking, and between loose association and reflective thinking. They fail to appreciate the value of initiative and of motivation in their study. They are too contented in saying that the book says so.

It was our purpose to help the student to develop a problem consciousness and to influence his pride in favor of his chosen profession. We tried to help him face the problems on their own account.

The results of the experiment as seen by the engineering instructors were as follows:

1. The students learned how to find practical engineering problems outside of their books and they took pride in finding them.

2. They learned to use their books as aids in the solution of problems.

3. They learned to welcome difficulties by learning that there are no real problems which do not involve difficulties, and that one can not advance in his profession without solving real problems.

4. Having discovered a practical problem which appealed to them as being worthy of their best efforts, they learned to work on it for days, if necessary, to solve it.

5. They learned to make practical estimates and use them in checking up their computations.

6. They found new ways of checking up their errors before working the problem through to the end.

7. They learned to be more careful in stating problems and setting up equations. They learned to consider the grounds of the problem carefully before solving.

8. They learned the difference between reasoning and computing, and that time spent in computation before they were sure of their reasoning processes was time wasted.

The foregoing improvements were shown in their actual methods of study as well as in their ideas of what ought to be done. They showed advancement in the practical logic of their studies.

To the engineering instructors and the writer, the experiment points strongly to the conclusion that more attention ought to be given by the university in developing better methods of study. There is, without doubt, a great need for university faculties to study the pedagogy of their instruction. When that time comes the "How-to-Study" course should be elected by faculty instructors and the "How-to-Study" methods should be carried over into their courses as an essential feature of the work.

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QUOTATIONS

OUT OF WORK AND INTO SCHOOL

ON September 1, 1917, when the federal child-labor law goes into effect, 27,000 factory children, ten to thirteen years old, and 17,000 children in mines and quarries, aged ten to fifteen, will be out of jobs. Meanwhile the legislatures of some forty states will have met. What will these legislatures have done to prepare a welcome for the children in the schoolhouses hitherto closed to them—in some sections, never built?

Most of the factory children are working in southern states, over six thousand of them in North Carolina, nearly three thousand in South Carolina, as many in Georgia, besides others in Mississippi, Virginia and the states where the fourteen-year limit is not carefully enforced or the twelve-year-old children of the poor are exempted from it. The majority of these are in textile mills—silk, woolen, knit-

ting and cotton—but cigar factories in Virginia, furniture factories in North Carolina and the miscellaneous factories that have been growing up all over the south with the spread of manufacture may have their share of children under fourteen. It is well known that the enforcement of state labor laws has never been adequate in the greater part of the south, chiefly because of the refusal of state legislatures to appropriate enough for thorough factory inspection, so that even where there is a fourteen-year limit the twelve-year-old child is likely to be at work.

It is hardly fair, however, to imply that state enforcement is without effect in the south. For instance, Commissioner Watson, of South Carolina, reports this year that there are only 2,881 children twelve to fourteen years old in the mills of his state, 1,673 fewer than in 1909, and no children under twelve, the minimum age limit. After these figures were compiled the South Carolina legislature forestalled federal regulation by adopting the fourteen-year limit, and it is probable that before next September the South Carolina mills will be practically empty of twelve- and thirteen-year-old operatives. But the fact remains that the federal fourteen-year limit will be felt chiefly below the Mason-Dixon line.

What will become of the children out of jobs? Some of the opponents of the federal law predicted in Congress that they would be "on the streets," that they would turn speedily into delinquents and criminals if they were removed from the moral atmosphere of the factory. Champions of the law suggested, on the other hand, that the children might go to school, as other twelve- and thirteen-year-olds have been known to do. This idea was not received with enthusiasm.

The sad truth is that it will probably be out of one job and into another for most of these factory children. The states most affected by the fourteen-year age limit are also the states with the weakest school laws and the least comprehensive child-labor laws. It will be perfectly possible, therefore, for the mill child who is fired the end of next August, out of respect for the federal law, to get a job in a bakery, or a laundry, or a store, or in any one of a number of local and unregulated occupations, and continue undisturbed his career as a wage-earner.

If his state school law requires only four months' school attendance a year, or exempts him from school for poverty, he can not be expected to waste much time getting an education. And if his state child-labor law says nothing against his working in a nice little "shine-parlor" or bakery, where federal inspectors never appear, he will certainly work there if they will take him on. It is to be hoped, however, that a flood of child labor in local industries may awaken the states themselves to the need of more thorough labor regulations and better school systems.

As for the 17,000 mining children, they presumably will find other jobs, too, since only 2,000 of them are under fourteen. The value of the federal law to them is that it takes them out of a very dangerous occupation and puts them into safe ones. The state that has the largest number of these children is West Virginia, with 1,839. Virginia has 621; Indiana, 585; Iowa, 340. The rest are scattered through the nineteen other states that have not taken children under sixteen out of their mines and quarries.

Besides the children thrown out of jobs there are over 100,000 children, fourteen and fifteen years old, whose hours of labor will be regulated. There are twenty-eight states that have not enacted an eight-hour day for children, and thirteen states that allow children to work at night. So the federal hours' regulations will affect states from New Hampshire to Louisiana and from Connecticut to Oregon. In Pennsylvania alone there are 30,000 children who will go from a nine-hour day to an eight-hour schedule. There are over 20,000 children in the south who have been working eleven hours a day, but will work only eight.—*The Survey.*

THE REPORT OF THE UNITED STATES COMMISSIONER OF EDUCATION

THERE were 23,500,000 persons attending schools of some kind in the United States in

1916, according to estimates of the United States Bureau of Education. "This means," declares the Annual Report of the Commissioner of Education, "that approximately 24 per cent. of the inhabitants of the United States are attending school, as compared with 19 per cent. in Great Britain, 17 per cent. in France, 20 per cent. in Germany, and a little over 4 per cent. in Russia." The bureau points out, however, that the result is much less favorable to the United States if daily attendance, rather than enrollment, is taken as the basis for comparison, since some of the other nations have better attendance and a longer school term than the United States.

The number of pupils in public kindergarten and elementary schools rose from 16,900,000 in 1910 to 17,935,000 in 1914, an increase of more than a million in four years. In the same period the number of public high-school students increased from 915,000 to 1,219,000; and for 1915 the corresponding figure was 1,329,000. As the result of this increase of 110,000 in public high-school students the total number of students in the 14,000 high schools of all kinds increased to a million and a half. Of the 11,674 public high schools reported, 8,440 had full four-year courses. Approximately 93 per cent. of all public high-school students are in four-year high schools.

The report analyzes the number of teachers in the United States, showing that of the 706,000 teachers, 169,000 were men and 537,000 women. The number of men teachers has increased very slightly since 1900; the number of women teachers has almost doubled. In public elementary schools the number of men teachers has decreased 20 per cent. since 1900, while the number of women teachers has increased 8 per cent. In 1900 teaching positions in public high schools were evenly divided between men and women. At the present time women outnumber the men by 8,000. The average annual salary of all teachers is $525. The figure is highest in the east and North Atlantic states, with $699 and $696, respectively, and lowest in the South Atlantic states ($329). It varies from $234 in Mississippi to $871 in California, and $941 in New York.

Expenditures for education in 1914, partly estimated, totaled close to $800,000,000. An estimate, making due allowances for the intervening two years and for items necessarily omitted, would easily bring the nation's current educational expenditure to a billion dollars. Public elementary schools cost in 1915 approximately $500,000,000; public high schools, $70,000,000; private elementary schools, $52,000,000; private secondary schools, $15,000,000; universities, colleges and professional schools, $100,000,000; normal schools, $15,000,000.

Of the $555,077,146 actually reported for public schools in 1914, $398,511,104 was by the North Atlantic and North Central states. New York expended $66,000,000; Pennsylvania, $52,000,000; Illinois, $39,007,314; Ohio, $35,172,950; California, $26,579,804; Massachusetts, $25,492,292; and New Jersey, $23,284,096. Six states, New Hampshire, Vermont, Delaware, Wyoming, New Mexico and Nevada, expended less than $2,000,000. On a per capita basis Utah ranked highest with an expenditure for education of $10.07; Idaho expended $9.66 per capita of population; North Dakota $9.62; Montana, $9.50; Arizona, $8.93; and Washington, $8.89; while Mississippi spent $1.48, South Carolina $1.83, Alabama $1.97, and Georgia $1.98.

Gifts and bequests to education amounted to $31,357,398 in 1914, of which $26,670,017 was for universities and colleges, $1,558,281 for theological schools and $1,495,773 for law schools. Since 1896 sums aggregating $407,000,000 have been given to educational institutions by private donors.

In discussing educational movements the report points out that most of the recent contributions are in the domain of practise rather than in theory. The report declares: "There seems to be a clearer vision as to the essential aims of education. Educational surveys have multiplied to a remarkable extent; almost no field has now been left untouched, and the latest findings in scientific measurements are being utilized in survey work. The health movement in education has experienced a notable stimulus from the preparedness situa-

tion and the demand for military training. Rural education has more and more enlisted the interest of the general public outside of professional circles and has clearly become a problem of administration and financing, rather than promotion. Vocational education is advancing slowly, but steadily, in a way that seems to afford the best possible guaranty of permanence."

Because of the increase in cost of paper a much smaller edition of the Annual Report of the Commissioner has been printed and many school officers and librarians who have received the volumes in past years will be obliged to purchase them at cost from the Superintendent of Documents at Washington. Reprints of the various chapters will be available for free distribution in the limited amounts allowed by law.

EDUCATIONAL RESEARCH AND STATISTICS

SIZE OF CLASS AND EFFICIENCY OF TEACHING

INTRODUCTION AND STATEMENT OF PROBLEM

THERE is a widespread notion among parents and teachers that the pupil in a small class, other things being equal, has a certain advantage over the pupil in a larger class. Recently investigators, on the basis of careful statistical studies, have quite generally assailed this notion and even preached the opposite. The larger the class the better, we are advised, up to a limit well beyond the ideal enrollment of many superintendents. And the most recent of all the students of this problem advises us to reduce our classes not at all.

The report which follows is the result of an attempt to test these recent conclusions experimentally. The experiment was conducted under the auspices of the Southeastern Michigan Superintendents' Round Table.[1] The writers wish here to express their appreciation of the interest and careful cooperation of the members of the Round Table. The response of the superintendents to the request for classes in which to conduct the experiment was indeed generous and gratifying.

[1] Committee on Cooperative Investigation: W. B. Arbaugh, F. S. Breed, H. M. Slauson and C. E. Spain.

REVIEW OF PREVIOUS WORK

Among others, O. P. Cornman, P. A. Boyer and Charles L. Harlan have studied this problem statistically. Their conclusions were drawn for the most part from data compiled from the regular school records. Cornman[2] used in his investigation the promotion records and the monthly report cards of District No. 6, Philadelphia, for January and February, 1909. Boyer[3] used the promotion records of all the public schools of Philadelphia for June, 1913. Both investigators adopted as the chief measure of efficiency the per cent. of promotion. Cornman summarized his conclusions as follows:

(*a*) That size of class is not a very important factor in the determination of rate of progress or retardation of the pupils of the class,

(*b*) that medium-sized classes (40 to 49 pupils) make somewhat the best showing,

(*c*) that large classes (50 or more pupils) make a poorer showing in primary than in grammar grades, and—as a corollary of (*c*)—

(*d*) that it is more important to have small classes in the primary than in the grammar grades.

On the whole Boyer's results support conclusions (*a*) and (*b*) of Cornman. Further, they indicate a negative correlation between size of class and teaching efficiency in the grammar grades, whereas in the primary grades size of class is a smaller factor. In the latter grades the best results seem to be obtained in classes of 40–44. For all grades combined no decline in efficiency is indicated up to an enrolment of 45; after that there is a very noticeable decline. Boyer finally recommends that all classes having more than 50 pupils be reduced to classes of 45 pupils.

Harlan,[4] in the introduction to his study,

[2] O. P. Cornman, "Size of Classes and School Progress," *Psych. Clinic*, Vol. 3, 1909.

[3] P. A. Boyer, "Class Size and School Progress," *Psych. Clinic*, Vol. 8, 1914.

[4] C. L. Harlan, "Size of Class as a Factor in Schoolroom Efficiency," *Educational Administration and Supervision*, Vol. 1, 1915.

referring briefly to the work on this problem by Rice, Cornman, Bachman and Boyer, says:

It is interesting to note that in every instance except one the investigators cited above advise against having overlarge classes. This advice is no doubt based on the belief that measures other than those used by these men, if applied to the achievements of large, medium and small classes, would undoubtedly reveal the harmful effects of having too many pupils in one class.

It was for the purpose of testing the truth of the above conclusions, by the use of various measures, that the present study was undertaken.

Harlan used copies of enrollment-promotion records returned from 32 cities for 1,348 classes. After employing various measures in addition to promotion percentage, he concluded that efficiency is to be increased "through improved methods of instruction and more efficient supervision of the larger classes rather than through a reduction in the size of classes."[5]

METHOD OF EXPERIMENT

Attention should be called to the fact, first, that practically all the work on this problem to date may be regarded as statistical; second, that the principal measure of efficiency employed has been promotion rate. There seemed to be room for a strictly experimental investigation in which progress would be measured directly and not through some substitute. Promotion rate as a measure of progress has been justly suspected. Cornman considered promotion rate "a convenient measure of rate of progress." Harlan, touching the same point, said:

This investigation confirms what all others have found; *i. e.*, that promotion rates can not be accepted as true measures of a school's success.

In view of these facts and in view as well of Harlan's rather surprising conclusion, the Southeastern Michigan Superintendents' Round Table decided to conduct another study of the problem, using the experimental instead of the statistical method and rate of progress of comparable groups as a measure of efficiency. Below is presented a copy of the general directions used in the experiment. Spelling, on account of the easily measurable character of the educational result, was the branch of study chosen.

GENERAL DIRECTIONS

1. Select for the experiment comparable classes, not necessarily from the same school, in each of the following grades: 3, 4, 5, 6, 7.

2. Give a preliminary test in each experimental class on the complete list of 80 words for the grade to which it belongs. These words will be submitted on a separate sheet.

Schedule for test as follows:

Grade 3, 4 days, 20 words per day, in order of list;
Grade 4, 3 days, 25 and 30 words, in order of list;
Grade 5, Grade 6, Grade 7, 2 days, 40 words per day, in order of list.

3. Drill on the list of words for 20 school days, immediately after the preliminary test.

4. Give a final test on the complete list of words immediately following the month's drill, duplicating exactly the conditions of the preliminary test.

5. In each case, in the two classes compared, have all conditions, except size, as nearly uniform as possible.

This will involve

(*a*) The same amount of time for study and recitation;
(*b*) The same number of words and the same words each day, both in advance and review;
(*c*) The same method of teaching;
(*d*) The same dates for preliminary and final tests; and, for any one class,
(*e*) The same person administering preliminary and final tests.

6. In teaching the words, follow the directions outlined in statement of method which is found on accompanying sheet. Devote one week to preliminary practise with this method, but not with the words, in the experimental class before the experiment proper begins.

7. In the preliminary and final tests the teacher will limit herself to the pronunciation of the words; that is, the meaning will not be given to the pupils either in the form of definition or by use of a word in a sentence, unless there be another word differing in meaning but pronounced the same.

8. In all grades take 5 new words the first day of the week, 5 new and 5 review the second day,

[5] *Ibid.*, p. 214.

etc., up to and including the fourth day. On the last day of the week review the 20 words.

The uniform method of teaching adopted was taken, with slight modification, from Suzzallo and Pearson.[6] The method follows:

METHOD OF TEACHING

1. Take the first word on the list and teach it in accordance with the following plan. Take the next, teaching it in the same way, and so on with the rest of the words.

(*a*) Develop the meaning orally either by calling for a sentence containing the word or by giving its definition, incidentally pronouncing the word distinctly.

(*b*) Have the pupils indicate what part of the word, if any, presents difficulties, or whether the word contains parts they already know.

(*c*) Have the pupils write the word, pronouncing it softly as they write. It would be well to have given a new sentence containing the word before they do this. This is to emphasize strongly the meaning of the word again just before the child writes it.

(*d*) Allow the class a moment in which to look at the word again and then close eyes and try to visualize it. Have considerable repetition both oral and written.

2. After the various words of the day's lesson have been studied in this way, allow a few moments for studying again the whole list and the list of the previous day, suggesting that each pupil emphasize the words he thinks he does not know. This time should be limited so that every pupil will attend vigorously and intensively. Call upon pupils individually and in concert to spell the whole list without looking at it. Refer them to the list again if they hesitate.

3. Finally, gather up the practise papers and dictate the words to the class, using each word in a sentence first. Keep the daily test papers also, so that the pupils may not study the words outside the class period.

A request for information concerning the number, grade and enrollment of large and small classes available for the experiment was mailed to 95 superintendents. With each letter was enclosed a preliminary data blank, as well as copies of the general directions for conducting the experiment and the method of teaching. Replies were received from 32 superintendents offering 138 classes. Of these 138 classes 82 were selected. The selection was determined, first, by enrollment; second, by grade; third, by population of the town. Classes of the larger and smaller enrollments were given preference. These classes were arranged in pairs, each pair consisting of one large and one small class of the same grade in towns of approximately the same size if the classes were not in the same town.

City _____ Grade _____

Teacher _____

Name of Pupil	Preliminary Test					Final Test				
	Date	Date	Date	Date	Per Cent. of 80 Words Correct	Date	Date	Date	Date	Per Cent. of 80 Words Correct
	No. of Words Missed	No. of Words Missed	No. of Words Missed	No. of Words Missed		No. of Words Missed	No. of Words Missed	No. of Words Missed	No. of Words Missed	

[6] Henry Suzzallo and Henry Carr Pearson, "Comparative Experimental Teaching in Spelling," *Teachers College Record*, Jan. 1, 1912, p. 55.

To each superintendent in whose schools one or more rooms had been selected for the experiment, a copy of the general directions, an outline of the method of teaching, a word list and a final report blank were sent for each teacher. There were five different lists of words, one for each grade, 80 words in each list. The final report of each teacher was made in the above form (p. 967).

RESULTS OF EXPERIMENT

Each report upon its return was carefully examined for any evidence of misunderstanding of the conditions under which the experiment was to be conducted, and for any failure to observe properly all the conditions. Of the 76 reports returned, 58, or 29 pairs, were found to comply with the conditions, and it was on the basis of these 58 reports that the following tabulations were made.

TABLE I

Average Per Cent. of Improvement, Large and Small Classes, Based on "Complete Records"

Grade	Average Per Cent. of Improvement		Difference in Average Per Cent. of Improvement	Average Enrollment, Large Classes	Average Enrollment, Small Classes	Average Number in Large Classes Whose Reports Were Complete	Average Number in Small Classes Whose Reports Were Complete	Number of Pairs
	Large Classes	Small Classes						
3	37.83	36.54	1.29+[7]	48.7	30.3	30.83	25.33	6
4	45.42	43.80	1.62+	44.	26.6	37.57	27.00	7
5	51.25	49.62	1.63+	46.	26.	39.83	27.00	6
6	46.59	43.52	3.07+	40.8	25.	36.00	24.00	5
7	35.07	37.21	2.14 −[8]	45.	22.8	42.40	21.00	5

Owing to absences, there were cases where children missed one or more portions of the preliminary or final tests. These absences account for the difference in the first two sets of averages. The set given in Table I. is based on "complete records," that is, on the reports of those pupils who missed no portion of the preliminary or final test. The second averages given in Table II. are based on "adjusted records," that is, on the reports of all pupils who took the preliminary and final test on at least one and the same part of the list. The averages were computed from the number of words common to both tests of the pupil—twenty, forty or sixty, as the case might be.

It will be seen in Table I. that in all grades except the seventh the large classes show a greatear per cent. of improvement than the small classes.

TABLE II

Average Per Cent. of Improvement, Large and Small Classes, Based on "Adjusted Records"

Grade	Average Per Cent. of Improvement		Difference in Average Per Cent. of Improvement	Average Enrollment, Large Classes	Average Enrollment, Small Classes	Average Number in Large Classes Whose Reports Were Used	Average Number in Small Classes Whose Reports Were Used	Number of Pairs
	Large Classes	Small Classes						
3	36.99	37.87	.88 −	48.7	30.3	41.00	27.66	6
4	45.73	44.06	1.67 +	44.	26.6	40.55	25.14	7
5	51.67	48.83	2.84 +	46.	26.	44.33	27.50	6
6	45.79	43.11	2.68 +	40.8	25.	38.00	24.20	5
7	35.92	37.26	1.34 −	45.	22.8	42.80	21.20	5

According to Table II., in all grades except the third and the seventh, the large classes showed a greater per cent. of improvement than the small. It is also to be noticed that while the two sets of averages, those in Table I. and those in Table II., are not identical, they are not contradictory except in the third grade. In this grade when the "complete records" were used the large classes exceeded the small classes 1.29 per cent., while with the "adjusted records" the small classes exceeded the large by .88 per cent.

MEASURE BY COMPARABLE GROUPS

It is obvious, however, that such a method of comparison as we have used in the two tables above may not be a reliable method of showing the relative increase in ability in the large and the small classes. Classes of the same grade may not be of the same ability. Classes of the same grade, but of different ability, do not constitute, strictly speaking, comparable groups. Without the same initial ability, equal percentages of improvement do not represent equal amounts of improvement. A class which raises its spelling ability from fifty to sixty does not show the same progress

[7] + means, here and elsewhere, in favor of large classes.

[8] — means, here and elsewhere, in favor of small classes.

as the class which raises its spelling ability from eighty to ninety. It seemed advisable, therefore, to submit the results to a different comparison. This was done by computing for any two classes compared the average gain of those who in the preliminary test had made 0–9 per cent., then the average gain of those who had made 10–19 per cent., and so on. In this way equal ability groups were secured in the large and small classes, and the improvement of these alone was compared. That is to say, where a subgroup in one class, for example, that making 30–39 per cent. in the preliminary, had no corresponding subgroup in the compared class, the 30–39 subgroup was ignored in computing the results. Table III. shows the manner in which the tabulation was made for each pair of classes.

TABLE III

The Per Cent. by Equal Ability Groups of Words Correctly Spelled in a Large and a Small Third-grade Class

	Preliminary Test				Final Test	
	Frequency	Large Class	Frequency	Small Class	Large Class	Small Class
0–9	2	[2.50]				
10–19	6	[13.97]				
20–29	1	22.50	4	25.60	88.75	86.69
30–39	3	37.50	3	32.03	93.75	90.42
40–49	6	43.33	3	43.30	95.83	92.50
50–59	4	51.56	6	56.22	94.69	93.97
60–69	4	64.69	3	65.40	96.87	92.08
70–79	6	72.61	4	74.35	98.12	97.81
80–89	4	82.50	2	80.60	99.69	98.75
90–100			1	[91.20]		
		374.69		377.50	667.70	652.22
Av....	...	53.53	...	53.93	95.39	93.17

TABLE IV

Average Per Cent. of Improvement of Equal Ability Groups in Large and Small Classes, Grades 3 to 7 Inclusive

Grade	Average Improvement of Large Classes	Average Improvement of Small Classes	Difference
3	36.06	35.01	1.05+
4	43.52	44.56	1.04−
5	50.42	47.98	2.44+
6	44.68	44.40	.28+
7	37.03	37.36	.33−

Table IV. shows that the large classes surpassed the small, except in the fourth and the seventh grades.

TABLE V

Number of Large Classes Exceeding Small Ones in Improvement, Comparison by Equal Ability Groups

Grade	No. of Pairs	No. of Pairs in which Large Classes Exceeded Small	Per Cent. of Pairs in which Large Classes Exceeded Small
3	6	3	50.00
4	7	3	42.85
5	6	5	83.33
6	5	3	60.00
7	5	3	60.00
	29	17	58.62

Table V., like Table IV., is based on percentages of improvement of equal ability groups. It shows the number of large classes in each grade whose rate of progress exceeded that of the compared small classes.

In addition to the above methods of treating the data, coefficients of correlation were computed for size of class and amount of improvement. For the size series total enrollments of classes were used; for the amount-of-improvement series, the preceding percentages of improvement of equal ability groups. When the complete list of 58 classes was used, r was found to have a value of .07. When the calculation was confined to classes with enrollments from 20 to 45, inclusive, the coefficient of correlation was .28, with a probable error of .098.

Finally, in Table VI., the 58 classes are arranged in groups according to increasing size of enrollment, with corresponding average percentages of improvement. The previously

TABLE VI

Class Size, Rate of Improvement and Efficiency of Teachers

Frequency	Enrollment	Average Pct. of Improvement	Efficiency of Teachers		
			A	*B*	*C*
4	13–19	42.50	3		1
8	20–24	39.19	4	3	1
7	25–29	40.96	2	4	1
6	30–34	43.57		5	1
9	35–39	44.10	4	3	2
9	40–44	44.90	3	4	2
7	45–49	43.40	1	5	
8	50–56	39.40	3	3	1

given improvement percentages of equal ability groups were used.

For the sake of convenience, data on the efficiency of the teachers in each enrollment group are included in Table VI. Reference will be made to these figures later.

DISCUSSION OF METHOD AND RESULTS

The conditions for this experiment would be ideal only if the size-of-class factor varied while all other factors remained uniform. Probably the two factors most difficult to control are ability of pupils and ability of teachers, either one of which might account for a difference in rate of progress when uniformity is lacking. In the foregoing experiment the method of comparable groups was adopted to eliminate the first of these two variables. When comparable groups are determined by measurement, groups comparable in name only lose their significance for the purpose of an experiment like this. A fourth grade can scientifically be paired with a third, if pupils only of the same initial ability in the two are compared.

The teacher-variable is more difficult to deal with, and this is the variable, probably, that most critics would mention in explanation of the average superiority of the larger classes. More than once, in discussing the results of this experiment with interested persons, the writer has been reminded of a supposed policy among superintendents of placing the better teachers in the larger rooms. In order to determine whether or not the better teachers had been assigned to the larger rooms, the following request was mailed to each superintendent who had teachers in the experiment, with the assurance that the information asked for would be used only in impersonal interpretation of the results of the experiment:

> 1. Estimate the general teaching efficiency of the teachers named below, using the marks *A*, *B* and *C* with the following meanings:
>
> *A*, Better than your average grade teacher;
>
> *B*, As good as your average grade teacher;
>
> *C*, Not so good as your average grade teacher.

Reports were received for 57 of the 58 teachers concerning whom inquiry was made.

TABLE VII

Efficiency of Teachers in Large and Small Classes, as Previously Paired

Grade	Number of Paired Classes	Better Teacher in Larger Class	Better Teacher in Smaller Class	Teachers Equal
3	6	4	1	1
4	7	2	3	2
5	5[9]	1	2	2
6	5	0	3	2
7	5	1	2	2
	28	8	11	9

When the opinions of the superintendents were tabulated according to grade and previous pairing of large and small classes, as in Table VII., it was found that in 11 of the 28 pairs for which returns were received the better teacher was in the smaller class, in 8 of the 28 pairs the better teacher was in the larger class, and in 9 pairs the teachers were of equal ability.

Returning now to Table VI., one can compare the amount of improvement and the efficiency of teaching in classes of different size. The figures under "Efficiency of Teachers" show the number of teachers grading *A*, *B* and *C* in each group of classes. As the enrollment increases from 13 to 34, there is, if anything, a gradual decrease of teaching efficiency. From 35 on the average quality of the teaching appears to be quite uniform. In the estimation of the superintendents, therefore, there was in these experimental classes no increase of teaching efficiency as the size of the classes increased, nor were the teachers of the larger classes superior to the teachers of the smaller classes in the 28 pairs of comparable groups. If the figures favor either set of teachers, it is the teachers of the smaller classes. To one interpretation of these estimates of teaching efficiency, the objection might be raised that the standard of judgment of each superintendent was local and relative to his own system. The answer is that these judgments work no unfairness to either set of teachers when applied alike to both.

There is a third factor, more easily controlled, that tended to vitiate the results of previous

[9] One report not returned.

investigations. Class size in these investigations has not always been identical with room enrollment. One can not determine from Harlan's report to what extent the teaching of a small class went along side by side with the management of another class or other classes seated in the same room. In the present study rooms containing more than one class were not accepted. In spite of precautions, however, it was discovered after the tabulations were completed that two of the classes with enrollments below twenty failed to comply with this requirement. When class size and room enrollment are not identical, a variable factor enters that may work detriment to the smaller classes.

Other factors like amount of time, amount and kind of work, and method of teaching, also under control in this study, need no special mention. Uniformity secured through control of these conditions is safer than an equalization of variability through averages.

SUMMARY AND CONCLUSIONS

The essential results of this experiment on the relation of the size of class to efficiency of teaching in the field of spelling may now be summarized as follows:

(*a*) In amount of improvement, computed on the basis of "complete records," the larger classes, with an average enrollment of 45.00, surpassed the smaller, with an average enrollment of 26.72, in four of five grades (Table I.).

(*b*) In amount of improvement, computed on the basis of "adjusted records," the larger classes surpassed the smaller in three of five grades (Table II.).

(*c*) In amount of improvement, computed for pupils of the same initial ability in compared classes, the larger classes surpassed the smaller in three of five grades (Table IV.).

(*d*) In number of classes of superior grade, based on the relative improvement of pupils of equal initial ability, the larger classes surpassed the smaller in 17 of 29 pairs (Table V.).

(*e*) There was a positive correlation of .07 between size of class and amount of improvement in the list of 58 classes; the correlation increased to .28, probable error .098, for classes from 20 to 45, inclusive, 40 in number.

(*f*) When classes were arranged according to increasing size of enrollment in groups differing from each other by five, there was a regular increase in the amount of improvement from an enrollment of 20 to an enrollment of 45; after that, a decrease (Table VI.).

(*g*) In amount of improvement the smaller classes in the seventh grade surpassed the larger.

These results, in the opinion of the writers, tend to confirm in the field of the elementary school the conclusion of Boyer and the New York Committee on School Inquiry "that all classes having more than fifty pupils should be reduced to classes of forty-five pupils." Harlan's advice that classes should not be reduced in size seems dangerous. The importance of this point is evident from a glance at the enrollment figures of Philadelphia for 1913. In that year 55 per cent. of the elementary pupils in that city were in classes whose enrollment was 45 and above.

On the other hand, we have much evidence in the present and previous studies to warrant the recommendation that, in general, classes in the elementary school of less than 40, especially below the seventh grade, be increased to an enrollment of 40 to 45. The investigations to date indicate that this can be done under our present system without loss in efficiency.

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SOCIETIES AND MEETINGS

WYOMING STATE TEACHERS' ASSOCIATION

THE Wyoming State Teachers' Association held at Cheyenne, November 29 to December 2, under the leadership of Dr. Julian E. Butterworth, was the best attended and most representative meeting of teachers ever held in the state. Out of the 1,600 teachers in the state, 350 were present, and each of the 21 counties was represented. (The average size of a county is over 5,000 square miles.)

Speakers from outside the state were Dr. Edward C. Elliott, chancellor of Montana

state educational institutions; Dr. Ernest Horn, from the University of Iowa; Dr. W. A. Cook, from the University of Colorado, and State Superintendent Mary C. C. Bradford, of Colorado.

Probably the most important action of the association was the adoption of the resolution supporting the principles recommended by the Wyoming School Code Committee. Two years ago, at the request of the state association, the legislature of Wyoming provided for a school code committee to be appointed by the governor.

This committee made its report to the assembled teachers of the state and invited constructive suggestions and criticism from them. After a free and full discussion the teachers pledged their support to the new code.

This code is to be presented to the legislature in January, 1917, and the school people hope through the influence of the teachers and others interested in education, to have it acted upon favorably.

The chief principles recommended by the code committee are: (*a*) A state board of education with the state superintendent as executive officer of the board to have general control of the schools of the state; (*b*) a county board of education with the county superintendent as executive officer to have general control of county schools; (*c*) raise standards for qualifications of teachers; (*d*) readjust sources and distribution of income so that the support of schools may come more from the state and county and less from local districts.

The report by Superintendent Fee for the reorganization and refinancing of our state association was another important matter up for consideration. At present, each teacher in the state is required to pay an annual fee of $1.00 for the registration of her certificate. This creates a fund which is used for the state association and for publishing the *Wyoming School Journal*. Mr. Fee proposed to make the support of the association voluntary and the organization more democratic.

The 1916 Wyoming state association was a place for educational inspiration, organized action for the betterment of schools, and a meeting where the older teachers welcomed newcomers in the profession who have recently "adopted" our state.

JENNIE GRAVES MCGUFFEY,
Secretary

THE SECTION OF EDUCATION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SECTION L, Education, of the American Association will meet at Teachers College, Columbia University, on December 27, 28 and 29. When the section was organized ten years ago few could have predicted that in a single decade the movement for the scientific study of educational problems would reach its present proportions. The program of the section lists some fifty papers dealing with nearly every phase of school work and represents contributions from educational centers from the south, north and west, as well as those in the east. Some of the papers listed on the program are as follows:

"Some Obstacles in Educational Progress," by Elwood P. Cubberley, retiring vice-president.

"Reliability of Certain Educational Tests," by E. L. Thorndike.

"The Effect of Auto-Micromotion Study on Educational and Industrial Methods," by Frank B. Gilbreth and Lillian Moller Gilbreth.

"The Effect of Hookworms and Malaria upon the Mental Capacity of School Children," by Truman L. Kelly.

"Qualifications of Teachers of Backward Children," by Henry H. Goddard.

"A Study of School Recesses and Intermissions," by W. H. Heck.

"Improvement in Power of Discrimination Resulting from Use of the Hillegas Composition Scale," by M. R. Trabue.

"The Relationship between the Indebtedness of City School Systems and Current Expenditures for the Operation and Maintenance of Schools," by Earl Clarke.

"The Measurement of Health and Physical Development of Pupils," by L. W. Rapeer.

"Need of More Scientific Methods in Educational Research," by A. Duncan Yocum.

"Experiments of Different Types of Readers," by C. T. Gray.

"A Study of the Attainments of Pupils in United States History," by J. Carleton Bell.